

PLACEMENT OF THE GENUS *BENEDICTIA* SANDERSON  
(COLEOPTERA: SCARABAEIDAE)

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## ABSTRACT

The Nearctic genus *Benedictia* is here assigned to the subfamily Melolonthinae, tribe Pachydemini, and is regarded as most closely related to Neotropical members of that tribe.

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Questions raised while I was attempting to identify several scarab beetles in a recent acquisition from Bolivia have led me to critically reexamine the placement of the Nearctic (Texas) genus *Benedictia* Sanderson.

At the time of description of *Benedictia pilosa*, Sanderson (1939:1) indicated that the genus "should be referred to the Pleocominae by a number of characters, but appears to be quite distinct from . . . *Pleocoma* or *Acoma*." He did not further elaborate upon these characters.

*Pleocoma* is unique among the Scarabaeidae in many characteristics and should be the only genus in the subfamily (*Acoma* belongs in the Melolonthinae, as will be discussed elsewhere). The especially unique genital structure of *Pleocoma*, along with a fairly simple wing venation, eleven segmented antennae, and "laprostict" posterior spiracles are important differences from the simple genitalia (see Sanderson 1939:14), slightly more advanced wing venation, ten segmented antennae, and "pleurostict" posterior spiracles of *Benedictia*.

There are a number of possible alternatives for placement of *Benedictia* if the multiple segmented antennal club is considered important. The number of segments in the antennal club is 4 or 5 in *Benedictia* (Sanderson 1939:2). Arrow (1904:483) indicated that within Scarabaeidae, more than 3 segments in the antennal club is found only in *Pleocoma* (Pleocominae), *Pachypus* (Pachypodinae), and, in Melolonthinae, in the tribes (*sensu* Dalla Torre) Systellopini, Sericini, Liparetrini, Melolonthini, and Pachydemini. Of these, Pachypodinae and the tribe Systellopini do not occur in the new world.

Pachypodinae is clearly a "laprostict" group, monotypic generically, and as unique as Pleocominae. *Benedictia*, a "pleurostict," would have to be placed elsewhere.

The Australian Systellopini, with a unique clypeal-labral fusion, also is a group that could not accept *Benedictia*.

Sericini differs significantly from *Benedictia* and the rest of Melolonthinae in a number of ways (Machatschke 1959). *Benedictia* lacks the anterior coxal characters, hind femur and tibial shape, and mouthpart characteristics of Sericini.

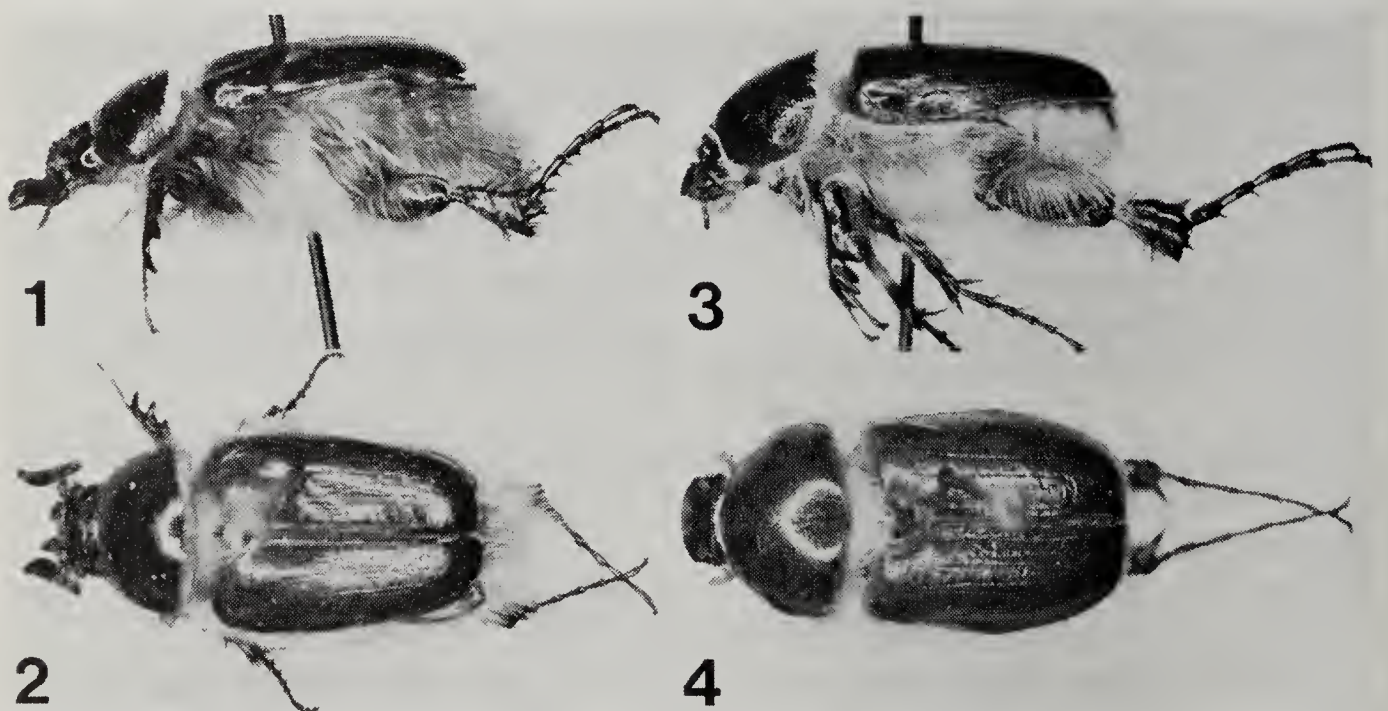
Liparetrini proper is restricted to the Australian Region (Britton, in litt.). The neotropical elements formerly included (now properly called

Sericoidini Burmeister 1855, see Saylor 1945:79, etc.) differ from *Benedictia* in a number of ways. Sericoidini presently includes 5 genera\* which appear to bear little if any relationship to each other. Of the genera I have examined (*Phytholaema*, *Sericoides*, as well as *Modialis*), Sericoidini seems to have more highly conical anterior coxae (approaching, in *Sericoides*, that of Sericini), fused abdominal sternites, an 8 or 9 segmented antennae with a 3 to 5 segmented club, and a bilobed labrum (this characterization does not seem incompatible with the literature on genera I have not examined). *Benedictia* shares none of these characteristics.

Melolonthini has been differentiated from Pachydemini mainly on the basis of the fusion of the abdominal sternites (Janssens 1949:10; Arnett 1963:403; Hardy 1974:4). In this regard, *Benedictia* would fall into Pachydemini.

The tribe Pachydemini has been used as a dumping ground for many genera whose placement is uncertain, and it therefore contains a number of entities which bear little relationship to each other. The tribe doesn't seem to have ever been formally defined or diagnosed in the form presented by Dalla Torre (1913:291); difficulties characterizing *Benedictia* or other genera as Pachydemines can be traced to this lack of definition. The changes needed to bring definition and unity to the tribe are beyond the scope of this paper; however, they will be attempted in a study of the higher classification of the Melolonthinae now underway. Despite the lack of a clear definition of the tribe, it seems acceptable to compare and associate taxa with genera presently placed in Pachydemini.

Since Dalla Torre, 14 genera have been added and 2 removed from the 66 he included in the tribe. Pachydemini is predominately African, and at present includes 78 genera (42 Ethiopian, 13 Palearctic, 15 Neotropical, 3 Nearctic, 3 Australian and 2 Oriental). The type genus, *Pachydema*, occurs throughout the Southern Palearctic (mainly N. Africa) and the Middle East.

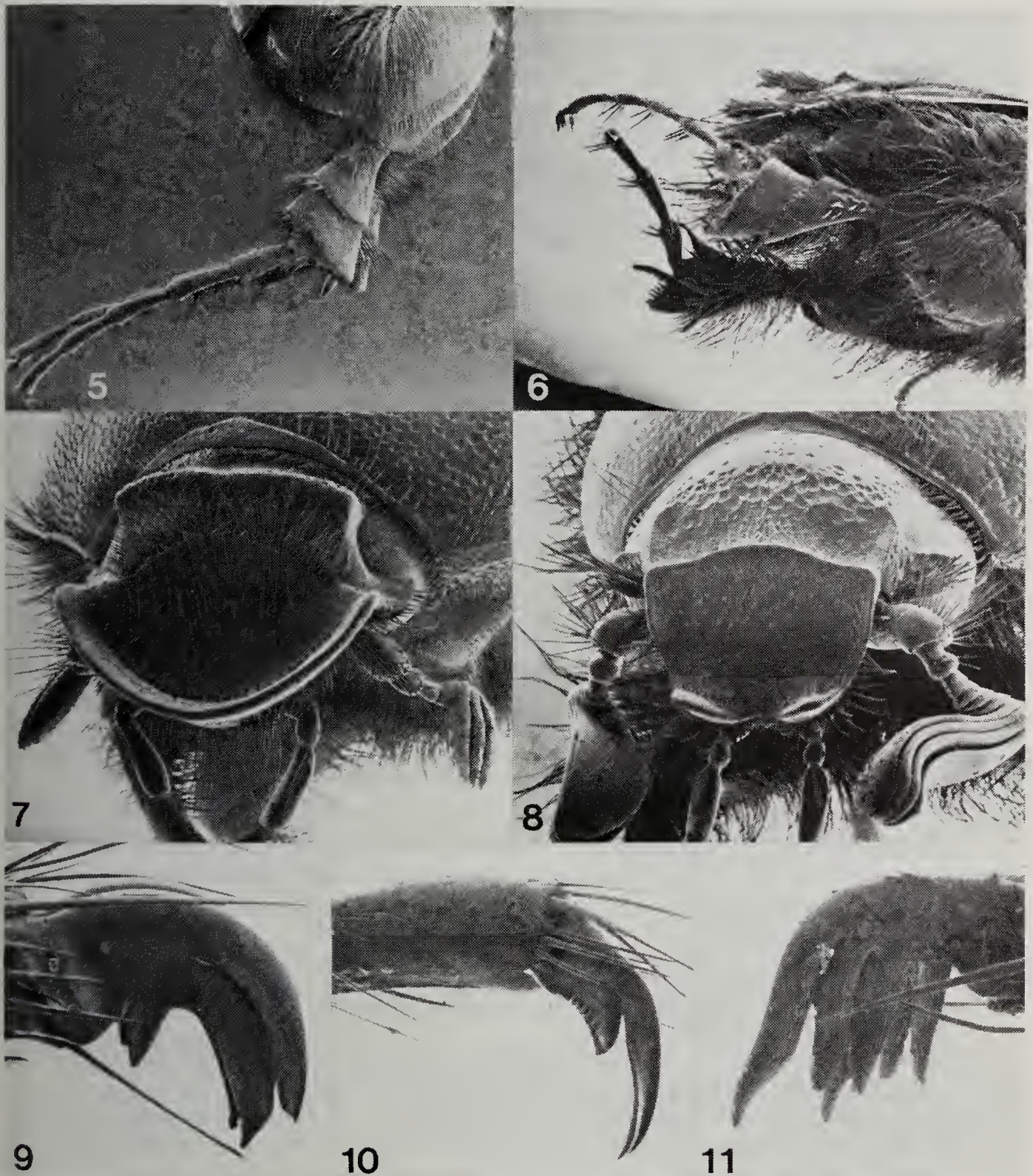


Figs. 1 and 2, *Benedictia pilosa*. Figs. 3 and 4, *Acylochilus* sp.

\* *Haplodema*, *Sericoides*, *Phytholaema*, *Zaburina*, and *Octotemna* (see Saylor 1945:79); *Plectrodes* and *Hypotrichia* have been transferred out (see Hardy 1974); *Modialis* would seem to belong in Macroductylini (see Dalla Torre 1913:321, footnote).

*Benedictia* is related to the South American pachydemine fauna. A recent series of papers by Martinez (1959, 1972, 1973, 1975) has clarified and expanded the knowledge of the Neotropical Pachydemini. Although I have only examined a few of the 15 genera, Martinez (1975) adequately characterized them and presented a key to the genera.

In habitus and a number of other morphological characteristics *Benedictia* resembles *Acylochilus* (*Acylochilus*) Ohaus spp. (Figs. 1-4) but differs enough from this genus to maintain the generic separation. *Benedictia* shares with *Acylochilus* the shape of the posterior leg (Figs. 5, 6), the massive hind coxae, the thickening of the front and clypeus (Figs. 7, 8) a simplified genital structure, and a similar gestalt (Figs. 1-4). It differs in the shape of the clypeus, the number of antennal segments, and the dentation of the tarsal claws.



Figs. 5, 7 and 10, *Acylochilus* sp. Figs. 6, 8 and 11, *Benedictia pilosa*. Fig. 9, *Sparmannia* sp. Figs. 5 and 6, posterior legs. Figs. 7 and 8, frontal view of head. Figs. 9, 10 and 11, posterior tarsal claws.

Genera currently included in Pachydemini have antennae with 8-11 segments (all old world genera I have knowledge of have 10 or 11; new world species have 8, 9, or 10 segments\*).

Among the Pachydemini many genera have cleft tarsal claws (*Phobetus*, *Acylochilus*, *Myloxena*, *Leuretra*, etc.), although to my knowledge no other new world genus has the claws tridentate as in *Benedictia*. However, at least some old world genera (see Fig. 9, *Sparmannia* sp.) do have tridentate claws.

*Benedictia* keys to couplet 11 in Martinez's 1975 key, which may be modified as follows:

11. Antennal club with 4 or 5 segments—*Benedictia* Sanderson, 1939  
 —Antennal club with 6 segments, the base of the 4th segment slightly dilated medially into a small lamella ..... 12  
 —Antennal club with 7 segments ..... 15

I believe *Benedictia pilosa* to be a relictual species, with its closest relatives in the Neotropical area.

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\**Phobetus* has an 8, 9, or 10 segmented antennae, *Acoma* 9, *Benedictia* 10, *Gronocarus* 8, *Fossocarus* 9.